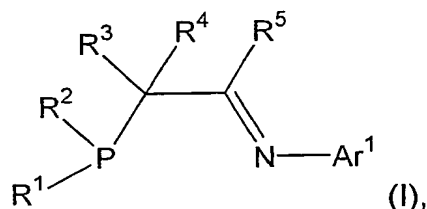


CLAIMS

What is claimed is:

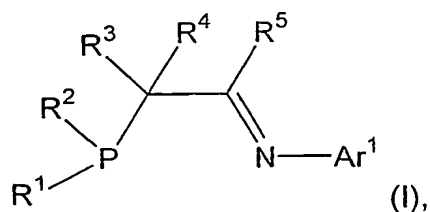
1. A process for the polymerization of olefins, comprising, using a polymerization catalyst system comprising a Ni, Pd, Fe or Co complex of a ligand of the formula



wherein:

- 10           Ar<sup>1</sup> is aryl or substituted aryl;  
              R<sup>1</sup> is hydrocarbyl, substituted hydrocarbyl, hydrocarbyloxy, or substituted hydrocarbyloxy;  
              R<sup>2</sup> hydrocarbyl or substituted hydrocarbyl;  
              R<sup>3</sup> and R<sup>4</sup> are each hydrocarbyl or substituted hydrocarbyl, or  
 15       R<sup>3</sup> and R<sup>4</sup> taken together form a ring; and  
              R<sup>5</sup> is hydrocarbyl or substituted hydrocarbyl.
2. The process as recited in Claim 1 wherein only 1 molecule of said ligand is coordinated to an atom of said transition metal.
3. The process as recited in Claim 2 which is carried out at a  
 20       temperature of about -100°C to about +200°C.
4. The process as recited in Claim 3 wherein said olefin is ethylene alone.
5. The process as recited in Claim 4 wherein Ar<sup>1</sup>, is phenyl or substituted phenyl.
- 25           6. The process as recited in Claim 5 wherein said transition metal is Ni.
7. The process as recited in Claim 6 wherein:  
              R<sup>1</sup> is alkyl, substituted alkyl, aryl, substituted aryl, aryloxy, or substituted aryloxy;  
 30           R<sup>2</sup> is alkyl, substituted alkyl, aryl or substituted aryl;  
              R<sup>3</sup> and R<sup>4</sup> are each independently alkyl or substituted alkyl; and  
              R<sup>5</sup> is hydrogen, aryl, substituted aryl, alkyl or substituted alkyl.
8. The process as recited in Claim 3 wherein said transition metal is Pd or Ni.

9. A compound of the formula



5 wherein:

Ar<sup>1</sup> is aryl or substituted aryl;

R<sup>1</sup> is hydrocarbyl, substituted hydrocarbyl, hydrocarbyloxy, or substituted hydrocarbyloxy;

R<sup>2</sup> hydrocarbyl or substituted hydrocarbyl;

10 R<sup>3</sup> and R<sup>4</sup> are each hydrocarbyl or substituted hydrocarbyl, or R<sup>3</sup> and R<sup>4</sup> taken together form a ring; and

R<sup>5</sup> is hydrocarbyl or substituted hydrocarbyl.

10. The compound as recited in Claim 9 wherein Ar<sup>1</sup>, is phenyl or substituted phenyl.

15 11. The compound as recited in Claim 10 wherein:

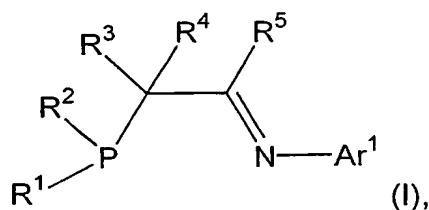
R<sup>1</sup> is alkyl, substituted alkyl, aryl, substituted aryl, aryloxy, or substituted aryloxy;

R<sup>2</sup> is alkyl, substituted alkyl, aryl or substituted aryl;

R<sup>3</sup> and R<sup>4</sup> are each independently alkyl or substituted alkyl; and

20 R<sup>5</sup> is hydrogen, aryl, substituted aryl, alkyl or substituted alkyl.

12. A transition metal complex of a compound of the formula



25 wherein:

Ar<sup>1</sup> is aryl or substituted aryl;

R<sup>1</sup> is hydrocarbyl, substituted hydrocarbyl, hydrocarbyloxy, or substituted hydrocarbyloxy;

R<sup>2</sup> hydrocarbyl or substituted hydrocarbyl;

30 R<sup>3</sup> and R<sup>4</sup> are each hydrocarbyl or substituted hydrocarbyl, or R<sup>3</sup> and R<sup>4</sup> taken together form a ring; and

R<sup>5</sup> is hydrocarbyl or substituted hydrocarbyl.

and wherein said transition metal is Fe, Co, Ni or Pd.

13. The complex as recited in Claim 12 wherein only 1 molecule of said ligand is coordinated to an atom of said transition metal.

5 14. The complex as recited in Claim 13 wherein said transition metal is Pd or Ni.

15. The complex as recited in Claim 14 wherein:

Ar<sup>1</sup> is phenyl or substituted phenyl;

10 R<sup>1</sup> is alkyl, substituted alkyl, aryl, substituted aryl, aryloxy, or substituted aryloxy;

R<sup>2</sup> is alkyl, substituted alkyl, aryl or substituted aryl;

R<sup>3</sup> and R<sup>4</sup> are each independently alkyl or substituted alkyl; and

R<sup>5</sup> is hydrogen, aryl, substituted aryl, alkyl or substituted alkyl.

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